2018 Spring Electrofishing (SEII) Summary Report

Napowan Lake (WBIC 190200)

Waushara County

Introduction and Survey Objectives

In 2018, the Department of Natural Resources conducted a one night electrofishing survey of Napowan Lake in order to provide insight and direction for the future fisheries management of this water body. Primary sampling objectives of this survey are to characterize species composition, relative abundance, and size structure. The following report is a brief summary of all activities conducted, general status of fish populations and future management options.

Acres: 52 Shoreline Miles: 1.5 Maximum Depth (feet): 18
Lake Type: Shallow Seepage Public Access: 1 Boat Launch
Regulations: All species statewide default regulations.

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Survey Information							
Site location	Survey Date	Water Temp. (F)	Target Species	Total Miles Shocked	No. of Stations	Gear	Dippers
Napowan Lake	5/07/2018	66	All	1.5	2	Boomshocker	2

Fish Metric Descriptions
PSD, CPUE, and LFD

Proportional Stock Density (PSD) is an index used to describe size structure of fish populations. It is calculated by dividing the number of quality size fish by the number of stock size fish for a given species. PSD values between 40 - 60 generally describe a balanced fish population.

Catch per unit effort (CPE) is an index used to measure fish population relative abundance, which simply refers to the number of fish captured per unit of distance or time. For electrofishing surveys, we typically quantify CPUE by the number and size of fish per hour of electrofishing the shoreline CPUE indexes are compared to statewide data by percentiles. For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state.

Length frequency distribution (LFD) is a graphical representation of the number or percentage of fish captured by half inch or one inch size intervals. Smaller fish (or younger age classes) may not always be represented in the length frequency due to different habitat usage or sampling gear limitations.

Survey Method

- Napowan Lake was sampled according to spring electrofishing (SEII) protocols as outlined in the statewide lake assessment plan. The primary objective for this sampling period is to count and measure adult bass and panfish. Other gamefish may be sampled but are considered by-catch as part of this survey.
- The entire shoreline was sampled using a boomshocker. All fish were identified to species and gamefish and panfish were measured for length.
- Fish metrics used to describe fish populations include proportional stock density, catch per unit effort, and length frequency distributions.

Size Structure Metrics									
Species	Total	Average Length (inches)	Length Range (inches)	Stock and Quality Size (inches)	Stock Number	Quality Number	PSD	Percentile Rank	Size Rating
Black Crappie	18	8.9	8.2 - 9.4	5.0 and 8.0	18	18	100%	100th	High
Bluegill	44	6.9	4.2 - 10.0	3.0 and 6.0	44	36	82%	96th	High
Largemouth Bass	200	10.6	7.6 - 21.0	8.0 and 12.0	195	19	10%	5th	Low
Northern Pike	2	36.0	29.5 - 36.0	14.0 and 21.0	2	2	Too few	-	-
Pumpkinseed	29	7.0	6.0 –7.7	3.0 and 6.0	29	29	100%	100th	High
Walleye	3	14.9	12.4—17.0	10.0 and 15.0	3	2	Too few	-	-

Abundance Metrics								
Species	Stock Size CPE (No. per Hour)	Total CPE (No. per Mile)	Percentile Rank	Overall Abundance Rating	Length Index	Length Index CPUE (No.per Mile)	Length Index Percentile Rank	Length Index Abundance Rating
Black Crappie	38 (≥ 5 Inches)	18	75th	Moderately High	≥ 8.0 inches	18	92nd	High
Bluegill	94 (≥ 3Inches)	44	34th	Low - Moderate	≥ 7.0 inches	33	87th	High
Largemouth Bass	279 (≥ 8 Inches)	133	98th	High	≥ 14.0 inches	1.3	34th	Low—Moderate
Northern Pike	3 (≥ 14 Inches)	1	35th	Low—Moderate	≥ 26.0 inches	1.3	98th	High
Pumpkinseed	62(≥ 3 inches)	29	85th	High	≥ 7.0 inches	13	98th	High
Walleye	4(≥ 10 inches)	2	20th	Low	≥ 15.0 inches	1.3	38th	Low—Moderate

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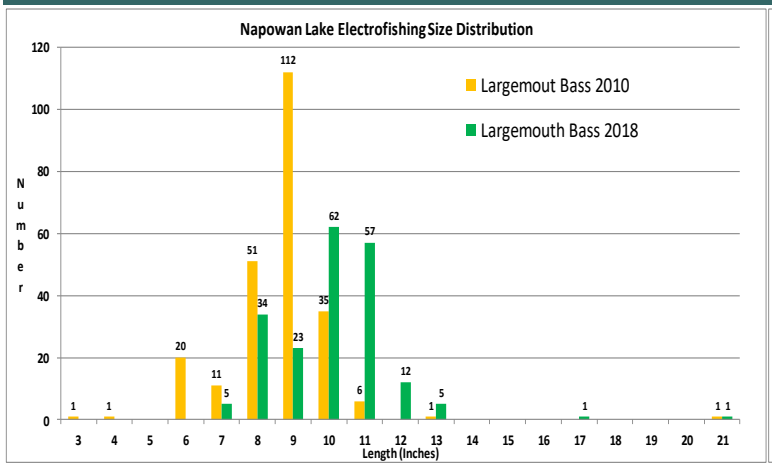

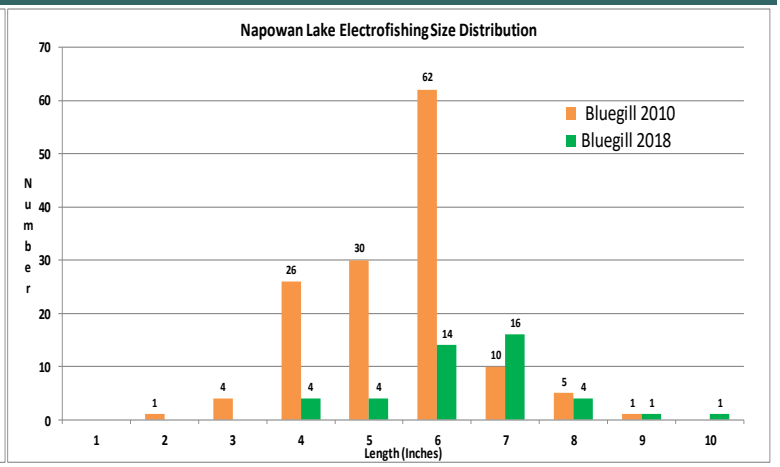

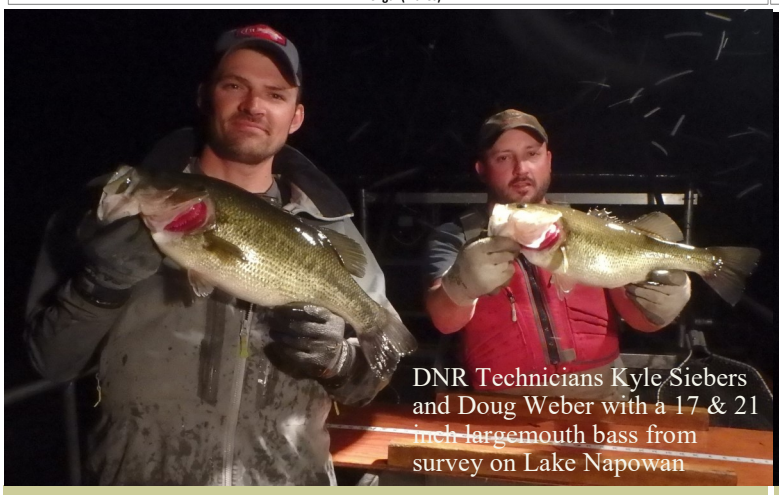

DNR Technicians Kyle Siebers and Doug Weber with a 17 & 21 inch largemouth bass from survey on Lake Napowan

DNR Technician Kyle Siebers with a 36 inch Northern Pike from Lake Napowan.

Summary

- A total of 322 fish in 9 species were collected during our survey. The most frequently encountered and common species were largemouth bass (200), bluegill (44), and pumpkinseed (29).
- Other species sampled in lower abundance included black crappie (18), Warmouth (13), white sucker (12), walleye (3), northern pike (2) and brown bullhead (1).
- Largemouth bass was the dominant gamefish captured in our survey. Size structure was low while abundance levels were high (279/Hr > 8 inches) but less than a 2010 survey (353/Hr). Even though the catch rate has decreased since 2010 it's still high and may be limiting the potential for larger bass, along with recruitment of panfish.
- The largest largemouth bass sampled was 21.0 inches, but only 1% of the catch was greater than 14.0 inches, an insignificant improvement since 2010 when 0.5% of largemouth captured were above 14.0 inches.
- Panfish populations are mainly comprised of bluegill, pumpkinseed and black crappie. Bluegill densities were at lower levels (94/Hr), which is a significant decrease from 2010 (360/Hr). Bluegills showed higher size structure with 82% of the catch greater than 6 inches, compared to 57% in 2010. Lack of recruitment is likely increasing these metrics.
- Napowan Lake is similar to some other lakes in the area in regards to high densities of largemouth bass and low densities of bluegill. Largemouth bass are an important predator to keep bluegill numbers at ideal densities, but an over abundance of them can be detrimental to the bluegill population. A good balance can provide excellent angling opportunities for bass and bluegills alike.

Management Options

This survey was primarily intended to assess largemouth bass and sunfish populations. Other species are captured but different survey techniques are typically used to assess their population metrics. Therefore, management recommendations are focused on bass and panfish.

Largemouth Bass

- Management Objective: Increase largemouth CPUE of bass > 14.0 inches to more than 20 per hour, decrease CPUE of bass > 8.0 inches to 50 - 100 per hour and increase the PSD to 40-60%.
- Management Action: A liberal bass regulation, to increase harvest of smaller largemouth bass, may help to improve size structure of bass and increase panfish abundance.

Panfish

- Bluegill size structure was found at high levels, while abundance was low-moderate. The 2018 survey showed a decrease in abundance and increase in size structure compared to 2010.
- Management Objective: Decrease bluegill electrofishing PSD (%>6.0 inches) to 40-60% and increase relative abundance to 200 - 300 per hour $\geq$ 3 inches. Lack of smaller sized bluegills in Napowan Lake is of concern for the sustainability of the fishery. A no size limit proposal for largemouth bass may help to achieve this goal.

Habitat

A diverse, natural shoreline is important to the health of a lakes aquatic ecosystem. Property owners are encouraged to continue to maintain a portion of their shoreline in a natural state along with protection and/or enhancement of their shoreline. Protection of near shore emergent vegetation and woody debris is critical to a lakes health. Tree drops done in 2014 by the Boy Scout Camp look good and are providing good nearshore habitat for fish young and old.